EDITORIAL COMMENT†

PENICILLINASE

After grinding the bacteria in a ball mill, Abraham and Chain[1] extracted an intracellular enzyme-like substance from *E. coli.* This extract was capable of completely inhibiting the in vitro bactericidal properties of penicillin. Harper[2] extracted an even more effective "penicillinase" from the paracolon bacillus. The British investigators could demonstrate no penicillinase, however, in penicillin-susceptible strains of staphylococci,[3] nor in staphylococcal cultures made penicillin-resistant by serial growth in the presence of increasing concentrations of penicillin. Penicillinase, therefore, was apparently of no practical clinical interest in staphylococcal infections.

The opposite conclusion is currently reported by Kirby[4] of Stanford University Hospital, San Francisco, from a study of initial staphylococcus aureus cultures isolated from patients subjected to penicillin therapy. All of his cultures were obtained before beginning the penicillin therapy, so as to rule out the phenomenon of acquired penicillin-resistance. Seven in vitro penicillin-refractory strains and 7 penicillin-susceptible cultures were selected for detailed study. Adopting Harper's[2] extraction technique a crude powdered extract was prepared from each culture. Confirming results reported by the British investigators,[3] Kirby found that the powdered extract from penicillin-susceptible strains contained no demonstrable trace of penicillinase. Even 2 mg. of the powdered extract added to as little as 1 unit of penicillin in no way reduced its bactericidal titer.

A quite different result was obtained with powdered extracts from penicillin-refractory strains. Here as little as 1 mg. of the powdered extract completely destroyed the bacteriostatic properties of at least 100 units of penicillin (higher number of units not tested). Confirming these findings Kirby found that actively growing cultures of refractory strains of staphylococci cause a complete destruction of penicillin in the culture medium. Such destruction is apparently wholly intracellular, since seitz filtrates of such cultures contain no demonstrable traces of penicillinase.

The penicillin-destroying enzyme is completely inactivated by heating to 56° C. for 60 minutes. Whether or not the staphylococcal penicillinase is antigenic and identical with penicillinase isolated from the colon or paracolon bacillus is as yet undetermined. Penicillinase has proved to be a valuable adjuvant to routine culture media, making possible successful blood cultures or exudate cultures from patients during the course of penicillin therapy. Study of the possible penicillinase content of nonstaphylococcal infections is now in progress in the Stanford Laboratory.

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† This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

SOCIALIZED MEDICINE

It is but natural that American doctors should oppose Federal socialization of medicine. They have seen such systems curb incentive and progress in the medical field in other nations, and remove the personal relationship between doctor and patient, leaving in its stead an official system as impersonal as medical examinations as Army induction centers. If that's what this nation wants, socialized medicine will fill the bill. But the people should remember that it is not the doctors, but Mr. and Mrs. John Jones who will be the losers.

In seeking a practical method for voluntary prepayment of medical costs to meet prolonged or serious illness, the public should not be misled by alluring promises of "free medicine" at the hands of the State. There can be, however, the fullest coöperation between Federal and local governments, industry, the people and the medical profession, to extend voluntary methods of health insurance without the regimentation and compulsion that inevitably follows socialized medicine.

Government can help solve such problems as malnutrition, bad housing, and the inadequacy of Federal, State and municipal health programs. One of the legitimate functions of government is to seek ways and means to correct social and economic conditions which cause disease, and which all the health insurance in the world will not remedy.

Therefore, let us retain the great advantages of private medicine but add to them the benefits that will accrue from the coöperation of government and industry in eliminating causes of illness, as well as providing easy and economical methods of paying for it.—San Francisco *Underwriter's Report,* August 31.

"Facts About Nursing": A New Booklet.—Facts About Nursing, 1944, a practical handbook of essential data about nursing, points up the growth of hospital, health and nursing services as well as of nursing schools in recent years and suggests trends of special interest to those concerned with postwar planning.

According to the 1944 Facts, approximately 208,000 registered nurses are serving civilians in this country. Another 48,000 are in military service; of these nearly 23,000 are overseas. Departments of the Federal Government, exclusive of the Army and Navy, employed over 6,500 nurses in 1943, and the employment of over 7,500 has been authorized for the current fiscal year.

The price of the *1944 Facts* is $0.25. Copies may be ordered from the Nursing Information Bureau of the American Nurses' Association, 1790 Broadway, New York 19, New York.